

## REMARKS

### 35 U.S.C. § 112

Claims 9, 10, 14, 16, and 20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In view of the amendments to claims 9, 10, 14, and 16, and the cancellation of claims 18-20, reconsideration of the rejection is requested.

### 35 U.S.C. § 103

Claims 1-20 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 4,710,521 issued to Soukup ("Soukup") in view of U.S. Patent No. 5,238,894 issued to Savoca ("Savoca"). It is respectfully submitted that the Examiner has not established *prima facie* obviousness.

Soukup does not disclose or suggest a tertiary amine catalyst that promotes trimerization of isocyanates. The Examiner concedes that Soukup does not disclose 2(2-Dimethylaminoethyl)methylamino-ethanol, which is the tertiary amine catalyst claimed in the independent claims. The Applicants have shown that this catalyst promotes the trimerization of isocyanates (without an additional component and especially at certain temperatures) whereas other known tertiary amines do not.

For example, referring to Figure 1 of Applicants specification, the trimerization of isocyanates promoted by 2(2-Dimethylaminoethyl)methylamino-ethanol (Z-110) is shown. Specifically, at about 680 seconds the Z-110 catalyst starts the trimerization reaction. The temperature at this time is about 141 °C. Thereafter, Z-110 increases the trimerization content to an Absorbance level above 0.3. In contrast, the sample without a catalyst and the samples with one of seven different tertiary amines have a trimerization content that levels off just above an Absorbance of 0.1. Thus, according to Figure 1 Z-110 is the only tertiary amine catalyst that promotes trimerization of isocyanates.

In the Office action, it is argued that although Soukup does not teach 2(2-Dimethylaminoethyl)methylamino-ethanol, he does disclose a catalyst for making a polyisocyanurate that includes a tertiary amine. Furthermore, it is asserted in the Office action that Savoca discloses a conventional tertiary amine that is used to make polyisocyanurate foams, and Savoca's tertiary amine is similar to the claimed tertiary amine. These assertions are respectfully traversed.

There is no reason to believe that the tertiary amine component of Soukup's catalyst promotes trimerization. Soukup's catalyst composition includes a mixture of an anhydrous alkali metal and/or alkaline earth metal salt of a low molecular weight carboxylic acid and a tertiary amine. Column 2, lines 44-55. The cation of the metal-based catalyst component is preferably an alkali metal salt such as K or Na. *Id.* Soukup attributes his improved percent conversion to trimer to the replacement of a high molecular weight carboxylate salt with the low molecular weight carboxylic acid salt. Column 2, line 56-column 3, line 25. Soukup does not assert that an improved trimer conversion is due to the presence of a tertiary amine catalyst. Rather, it is submitted that Soukup's tertiary amine component catalyzes the reaction between an isocyanate group and an active hydrogen atom. *Id.* See also column 5, lines 30-35 and column 6, lines 10-17. This assertion is supported by Soukup's lack of disclosure of the claimed tertiary amine, and Applicants demonstration that other tertiary amines do not promote trimerization. In fact, Soukup discloses that N,N',N''-tris(dialkylaminoalkyl) hexahydrotriazines are a preferred tertiary amine catalyst, and Applicants have demonstrated that a triazine, TR-90, does not promote trimerization. See Applicants Figure 1. Thus, there is no reason to believe that the tertiary amine component of Soukup's composition promotes trimerization.

Likewise, Savoca does not disclose a tertiary amine that is functionally or structurally similar to the one claimed. Rather, Savoca discloses an adduct of a tertiary amine urethane catalyst and a boron compound. See column 4, lines 43-58. Without being bound by theory, it is believed that the anion of Savoca's adduct is what catalyzes the trimer reaction. For example, in Example 5 Savoca mixes pentamethyl-diethylenetriamine (PMDETA) with boric acid and water. But Applicants have shown that PMDETA does not promote trimerization. See Applicants Figure 1. Thus, Savoca's adducts are not similar to the claimed tertiary amine in structure or function.

As Savoca does not disclose a compound that is structurally or functionally similar that claimed, it is respectfully submitted that the Examiner has not established *prima facie* obviousness or inherency.<sup>1</sup>

Furthermore, there is no reason to combine the teachings of Soukup and Savoca. That is, Soukup uses a metal salt of a low molecular weight carboxylic acid, such as a potassium or

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<sup>1</sup> The Office action includes an assertion of inherency in conjunction with the §103 rejection. To establish inherency the thing necessarily must occur. In view of the Applicants representative's discussion regarding non-obviousness, it is also submitted that the claimed invention is not inherent to either Soukup or Savoca.

sodium salt, and a tertiary amine (column 2, lines 44-55) and Savoca uses an adduct of a tertiary amine and a boron compound. The catalysts taught by the two different inventors differ structurally (and functionally) and, as such, the Examiner has not shown why one would be motivated to combine the reference teachings to do what the Applicants have done. For at least this additional reason, *prima facie* obviousness has not been established and withdrawal of the rejection is requested.

Under a similar analysis, withdrawal of the rejection of claims 1-17 under 35 U.S.C. § 103 (a) as being obvious over Soukup in view of the Applicants alleged admission is requested.

### CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is now in condition for allowance, and respectfully request issuance of a Notice of Allowance directed towards the pending claims.

The Commissioner for Patents is hereby authorized to deduct any extension of time fees that are due in connection with the filing of this document from Huntsman Corporation Deposit Account No. 08-3442.

Respectfully Submitted,

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Rhonda L. Sheldon  
Reg. No. 50,457  
Attorney for Huntsman  
10003 Woodloch Forest Dr.  
The Woodlands, TX 77380  
Phone: (281) 719-4437  
Fax: (281) 719-4045